

Dear Editor,

We thank you and Dr. Mariem Saavedra-Pellitero for the second revision of our manuscript. You carefully read all the manuscript and we thank you for all the suggestions you gave us. We follow your advice and we made most of the changes that you asked.

Primarily, we revised the introduction and we changed the order of the key messages following the order Dr. Mariem Saavedra-Pellitero recommended.

Moreover, we decided to add one new table (Table 1) in the introduction. In this table, we reported all the papers that we could find in the literature, where the morphological and morphometrical variations of calcareous nannoplankton observed in the fossil record, were compared with the results obtained from experiments with living coccolithophores. We, therefore, excluded from this list, papers that showed size and shape analyses of calcareous nannofossils without considering data from culturing experiments (e.g. Erba et al., 2019).

Moreover, in the introduction, we added some references that were missing (lines 33-34).

Finally, in the introduction, we did not follow the referee comment in line 49.

*R: L.49: If the approach has been shown that it is a valid, saying that it has "not been further tested so far" is a bit odd.  
L.50: I would change "to the best of our knowledge, not been further tested so far" to something less absolute, like "has not been explored in depth" or something similar.*

We didn't change that part: we don't understand the referee request but we hope that the new structure of the introduction makes this part clearer to the referee. We underline that, from our point of view, this sentence is important for the message we want to communicate. However, we follow the referee advice for the subsequent line (L50) and we changed the text accordingly.

In the discussion paragraph, we deleted two sentences (lines 267-269 and lines 284-285 in the previous version of the manuscript): after reading the manuscript several times, we found these sentences redundant since the information was already given and clarified in the introduction.

We added the references included in Table 1 and lines 33-34 to the reference list.

We finally checked our manuscript carefully for typos, terminology, references.

All the variations in the text are in blue.

With kind regards

On behalf of all co-authors

Giulia Faucher